

#8

SEQUENCE LISTING



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RENO, JOHN

<120> HUMANIZED ANTIBODIES

<130> 014357/027 8772

<140> 09/910,483

<141> 2001-07-19

<160> 96

<170> PatentIn Ver. 2.1

<210> 1

<211> 116

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VH Domain
peptide of Hum A

<400> 1

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
20 25 30

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Ser Asp Asp Ser Lys Asn Thr Ala Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Thr Asp Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ser
115

<210> 2

<211> 348

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VH nucleotide sequence of Hum A

<400> 2

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gaagttcaac ttgttgagtc tgggtggcggc ctggttcagc cgggtggctc tctgcgcctg 60
tcttgccgag caagcgggtt caacattaag gacacctaca tccattgggt gaggcaagct 120
ccgggtaagg gtctggagtg ggtggcacgt atcgaccggg caaacgacaa caccatttac 180
gctgacagcg tgaagggccg ttttactatt tctagcgacg actctaagaa caccgcgtac 240
cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac ggactctggc 300
tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttct 348

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<210> 3

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL Domain peptide of Hum A

<400> 3

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Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1             5             10             15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
      20             25             30

Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
      35             40             45

Tyr His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
      50             55             60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
      65             70             75             80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
      85             90             95

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
      100             105

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<210> 4

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL nucleotide sequence of Hum A

<400> 4

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gatatccaga tgacccaatc tccgtctagc ctgagcgcca gtgttggtga tcgagttacc 60
attacttgcc gcgccagcca atctatcagt aataatcttc actggtatca acaaaaaccg 120
ggtaaagctc cgaaaacttct tatctatcac gcctctcaga gcattagcgg cgttccgagc 180

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cgcttctctg gctctggctc gggcacggac tttaccctta ccatacagtc tcttcagccg 240
 gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcgggtcaa 300
 ggtaccaagg tcgagattaa gcgc 324

<210> 5
 <211> 116
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VH Domain
 peptide of Hum B

<400> 5
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
 20 25 30
 Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Ser Asp Asp Ser Lys Asn Thr Ala Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Thr Ala Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
 100 105 110
 Thr Val Ser Ser
 115

<210> 6
 <211> 348
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VH nucleotide
 sequence of Hum B

<400> 6
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 tcttgccgag caagcggttt caacattaag gacacctaca tccattgggt gaggcaagct 120
 ccgggtaagg gtctggagtg ggtggcacgt atcgaccggg caaacgacaa caccatttac 180
 gctgacagcg tgaagggccg ttttactatt tctagcgacg actctaagaa caccgcgtac 240
 cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac ggctctggc 300
 tactgggttg cctactgggg ccagggcacg cttgtcaccg tctcttct 348

<210> 7
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VL Domain
 peptide of Hum B

<400> 7
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
 20 25 30
 Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Tyr His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
 85 90 95
 Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105

<210> 8
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VL nucleotide
 sequence of Hum B

<400> 8
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 attacttgcc gcgccagcca atctatcagt aataatcttc actgggtatca acaaaaaaccg 120
 ggtaaagctc cgaaacttct tatctatcac gcctctcaga gcattagcgg cgttccgagc 180
 cgcttctctg gctctggctc gggcacggac tttaccctta ccatcagctc tcttcagccg 240
 gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcgggtcaa 300
 ggtaccaagg tcgagattaa gcgc 324

<210> 9
 <211> 116
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VH Domain
 peptide of Hum C

<400> 9

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
 20 25 30

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Gly Asp Asp Ser Lys Asn Thr Ala Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Thr Thr Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
 100 105 110

Thr Val Ser Ser
 115

<210> 10

<211> 348

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VH nucleotide
 sequence of Hum C

<400> 10

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 tcttgccgag caagcgggtt caacattaag gacacctaca tccattgggt gaggcaagct 120
 ccgggtaagg gtctggagtg ggtggcacgt atcgaccgga caaacgacaa caccatttac 180
 gctgacagcg tgaagggccg ttttactatt tctggcgacg actctaagaa caccgcgtac 240
 cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac gacctctggc 300
 tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttct 348

<210> 11

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL Domain
 peptide of Hum C

<400> 11

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
 20 25 30
 Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Tyr His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
 85 90 95
 Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105

<210> 12

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL nucleotide sequence of Hum C

<400> 12

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 attacttgcc gcgccagcca atctatcagt aataatcttc actggatatca acaaaaaaccg 120
 ggtaaagctc cgaaacttct tatctatcac gcctctcaga gcattagcgg cgttccgagc 180
 cgcttctctg gctctggctc gggcacggac tttaccctta ccatcagctc tcttcagccg 240
 gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcgggtcaa 300
 ggtaccaagg tcgagattaa gcgc 324

<210> 13

<211> 116

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VH Domain peptide of Hum D

<400> 13

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
 20 25 30
 Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Ser Asp Asp Ser Lys Asn Thr Ala Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Thr Thr Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ser
115

<210> 14

<211> 348

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VH nucleotide
sequence of Hum D

<400> 14

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tcttgccgag caagcgggtt caacattaag gacacctaca tccattgggt gaggcaagct 120
ccgggtaagg gtctggagtg ggtggcacgt atcgaccggg caaacgacaa caccatttac 180
gctgacagcg tgaagggccg ttttactatt tctagcgacg actctaagaa caccgcgtac 240
cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac gacctctggc 300
tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttct 348

<210> 15

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL Domain
peptide of Hum C

<400> 15

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
20 25 30

Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
 85 90 95

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105

<210> 16

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL nucleotide
 sequence of Hum D

<400> 16

gatatccaga tgaccaatc tccgtctagc ctgagcgcca gtggtggtga tcgagttacc 60
 attacttgcc gcgccagcca atctatcagt aataatcttc actggtatca aaaaaaacg 120
 ggtaaagctc cgaaacttct tatctatcac gcctctcaga gcattagcgg cgttccgagc 180
 cgcttctctg gctctggctc gggcacggac ttaccctta ccatacagctc tttcagccg 240
 gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcggtcaa 300
 ggtaccaagg tcgagattaa gcgc 324

<210> 17

<211> 116

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VH Domain
 peptide of Hum E

<400> 17

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
 20 25 30
 Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Asp Pro Lys Val
 50 55 60
 Gln Gly Arg Phe Thr Ile Ser Ala Asp Asp Ser Lys Asn Thr Ala Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Thr Thr Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
 100 105 110
 Thr Val Ser Ser
 115

<210> 18
 <211> 348
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VH nucleotide
 sequence of Hum E

<400> 18
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 tcttgccgag caagcgggtt caacattaag gacacctaca tccattgggt gaggcaagct 120
 ccgggtaagg gtctggagtg ggtggcacgt atcgaccgga caaacgacaa caccatttac 180
 gatccgaagg tgcagggccg ttttactatt tctgcggacg actctaagaa caccgcgtac 240
 cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac gacctctggc 300
 tactggtttg cctactgggg ccagggcacg cttgtcacg tctcttct 348

<210> 19
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VL Domain
 peptide of Hum E

<400> 19
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
 20 25 30
 Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Tyr His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
 85 90 95
 Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105

<210> 20
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL nucleotide sequence of Hum E

<400> 20

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gatatccaga tgacccaatc tccgtctagc ctgagcgcca gtgttggtga tcgagttacc 60
attacttgcc gcgccagcca atctatcagt aataatcttc actggatatca acaaaaaccg 120
ggtaaagctc cgaaacttct tatctatcac gcctctcaga gcattagcgg cgttccgagc 180
cgcttctctg gctctggctc gggcacggac tttaccctta ccatcagctc tcttcagccg 240
gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcgggtcaa 300
ggtaccaagg tcgagattaa gcgc                                     324

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<210> 21

<211> 116

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VH Domain peptide of Hum F

<400> 21

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Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1              5              10              15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
      20              25              30

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35              40              45

Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Ala Asp Ser Val
 50              55              60

Lys Gly Arg Phe Thr Ile Ser Ala Asp Asp Ser Lys Asn Thr Ala Tyr
 65              70              75              80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
      85              90              95

Thr Thr Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
 100              105              110

Thr Val Ser Ser
      115

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<210> 22

<211> 348

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VH nucleotide sequence of Hum F

<400> 22
 gaagttcaac ttgttgagtc tgggtggcggg ctggttcagc cgggtgggctc tctgcgcctg 60
 tcttgccgag caagcgggtt caacattaag gacacctaca tccattgggt gaggcaagct 120
 ccgggtaagg gtctggagtg ggtggcacgt atcgaccggg caaacgacaa caccatttac 180
 gctgacagcg tgaagggccg ttttactatt tctgcggacg actctaagaa caccgcgtac 240
 cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac gacctctggc 300
 tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttct 348

<210> 23
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VL Domain
 peptide of Hum F

<400> 23
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
 20 25 30
 Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Tyr His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
 85 90 95
 Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105

<210> 24
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VL nucleotide
 sequence of Hum F

<400> 24
 gatatccaga tgacccaatc tccgtctagc ctgagcgcca gtggttggtga tcgagttacc 60
 attacttgcc gcgccagcca atctatcagt aataatcttc actggtatca acaaaaaccg 120
 ggtaaagctc cgaaacttct tatctatcac gcctctcaga gcattagcgg cgttccgagc 180
 cgcttctctg gctctggctc gggcacggac tttaccctta ccatcagctc tcttcagccg 240
 gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcgggtcaa 300
 ggtaccaagg tcgagattaa gcgc 324

<210> 25
 <211> 116
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VH Domain
 peptide of Hum G

<400> 25
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
 20 25 30
 Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Ala Asp Asp Ser Lys Asn Thr Ala Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Thr Thr Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
 100 105 110
 Thr Val Ser Ser
 115

<210> 26
 <211> 348
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VH nucleotide
 sequence of Hum G

<400> 26
 gaagttcaac ttgttgagtc tggtggcggt ctggttcagc cgggtggctc tctgcgcctg 60
 tcttgcgag caagcggtt caacattaag gacacctaca tccattgggt gaggcaagct 120
 ccgggtaagg gtctggagtg ggtggcacgt atcgaccg caaacgacaa caccatttac 180
 gctgacagcg tgaagggccg tttactatt tctgcggacg actctaagaa caccgcgtac 240
 cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac gacctctggc 300
 tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttct 348

<210> 27
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL Domain
peptide of Hum G

<400> 27

Asp	Ile	Gln	Met	Thr	Gln	Ser	Pro	Ser	Ser	Leu	Ser	Ala	Ser	Val	Gly
1				5				10						15	

Asp	Arg	Val	Thr	Ile	Thr	Cys	Arg	Ala	Ser	Gln	Ser	Ile	Ser	Asn	Asn
		20					25						30		

Leu	His	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys	Leu	Leu	Ile
	35					40						45			

Lys	His	Ala	Ser	Gln	Ser	Ile	Ser	Gly	Val	Pro	Ser	Arg	Phe	Ser	Gly
	50					55				60					

Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro
65					70					75				80	

Glu	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Ser	Asn	Ser	Trp	Pro	Tyr
				85				90						95	

Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Glu	Ile	Lys	Arg
		100					105				

<210> 28

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL nucleotide
sequence of Hum G

<400> 28

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attacttgcc	gcgccagcca	atctatcagt	aataatcttc	actggtatca	acaaaaaccg	120
ggtaaagctc	cgaaacttct	tatcaaacac	gcctctcaga	gcattagcgg	cgttccgagc	180
cgcttctctg	gctctggctc	gggcacggac	tttaccctta	ccatcagctc	tcttcagccg	240
gaagactttg	ccacctatta	ttgtcagcag	tctaatagct	ggccgtatac	cttcggtcaa	300
ggtaccaagg	tcgagattaa	gcgc				324

<210> 29

<211> 116

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VH Domain
peptide of Hum H

<400> 29

Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly
1				5				10						15	

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
 20 25 30
 Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Asp Pro Lys Val
 50 55 60
 Gln Gly Arg Phe Thr Ile Ser Ala Asp Asp Ser Lys Asn Thr Ala Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Thr Thr Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
 100 105 110
 Thr Val Ser Ser
 115

<210> 30

<211> 348

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VH nucleotide sequence of Hum H

<400> 30

gaagttcaac ttgttgagtc tgggtggcggc ctggttcagc cgggtggctc tctgcgcctg 60
 tcttgccgag caagcggttt caacattaag gacacctaca tccattgggt gaggcaagct 120
 ccgggtaagg gtctggagtg ggtggcacgt atcgaccggg caaacgacaa caccatttac 180
 gatccgaagg tgcagggccg ttttactatt tctgcggacg actctaagaa caccgcgtac 240
 cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac gacctctggc 300
 tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttct 348

<210> 31

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL Domain peptide of Hum H

<400> 31

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
 20 25 30

Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Lys His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
 85 90 95
 Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105

<210> 32

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL nucleotide sequence of Hum H

<400> 32

gatatccaga tgaccaatc tccgtctagc ctgagcgcca gtggttggtga tcgagttacc 60
 attacttgcc gcgccagcca atctatcagt aataatcttc actggtatca acaaaaaccg 120
 ggtaaagctc cgaaacttct tatcaaacac gcctctcaga gcattagcgg cgttccgagc 180
 cgcttctctg gctctggctc gggcacggac tttaccctta ccacagctc tcttcagccg 240
 gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcgggtcaa 300
 ggtaccaagg tcgagattaa gcgc 324

<210> 33

<211> 116

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VH Domain peptide of Hum I

<400> 33

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
 20 25 30
 Tyr Ile His Trp Met Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Asp Pro Lys Val
 50 55 60
 Gln Gly Arg Phe Thr Met Ser Ala Asp Thr Ser Lys Asn Thr Ala Tyr
 65 70 75 80

[illegible]

```
<210> 34
<211> 348
<212> DNA
<213> Artificial Sequence
```

<220>
<223> Description of Artificial Sequence: Synthetic VH nucleotide
sequence of Hum I

<400> 34						
gaagttcaac	ttgttgagtc	tggtggcggc	ctggttcagc	cggttggtc	tctgcgcctg	60
tcttgccgag	caagcggttt	caacattaag	gacacctaca	tccattggat	gaggcaagct	120
ccgggttaagg	gtctggagtg	ggtggcacgt	atcgaccggg	caaacgacaa	caccatttac	180
gatccgaagg	tgcaggggccg	ttttactatg	tctgcggagc	actctaagaa	caccgcgtac	240
cttcagatga	actctctcgc	tcgccaggac	accgcgctct	actactgcac	gacctctggc	300
tactggtttg	cctactggggg	ccaggggcacg	cttgtcaccg	tctcttct		348

```
<210> 35
<211> 108
<212> PRT
<213> Artificial Sequence
```

```
<220>
<223> Description of Artificial Sequence: Synthetic VL Domain
      peptide of Hum I
```

```

<400> 35
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
  1                               10                          15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
      20                      25                      30
Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
      35                      40                      45
Lys His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
      50                      55                      60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
      65                      70                      75                      80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
      85                      90                      95

```


Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105

<210> 36

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL nucleotide sequence of Hum I

<400> 36

gatatccaga tgaccaatc tccgtctagc ctgagcgcca gtggttggtga tcgagttacc 60
 attacttgcc ggcagccagcca atctatcagt aataatcttc actggatatca acaaaaaccg 120
 ggtaaagctc cgaaacttct tatcaaacac gcctctcaga gcattagcgg cgttccgagc 180
 cgcttctctg gctctggctc gggcacggac tttaccctta ccatcagctc tcttcagccg 240
 gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcgggtcaa 300
 ggtaccaagg tcgagattaa gcgc 324

<210> 37

<211> 116

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Murine 1A6 VH Domain consensus sequence of Heavy Chain Subgroup III (Humiii)

<400> 37

Glu Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Val Lys Pro Gly Ala
 1 5 10 15
 Ser Leu Lys Leu Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Thr
 20 25 30
 Tyr Ile His Trp Met Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile
 35 40 45
 Gly Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Asp Pro Lys Val
 50 55 60
 Gln Gly Lys Ala Thr Met Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr
 65 70 75 80
 Leu Gln Leu Asn Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Thr Thr Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
 100 105 110
 Thr Val Ser Ser
 115

<210> 38
 <211> 108

<212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Murine 1A6 VL Domain
 consensus sequence of Light Chain K Subgroup I (HumKI)

<400> 38
 Asp Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Val Thr Pro Gly
 1 5 10 15
 Asp Ser Val Ser Leu Ser Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
 20 25 30
 Leu His Trp Tyr Gln Gln Lys His Ser Glu Ser Pro Arg Leu Leu Ile
 35 40 45
 Lys His Ala Ser Gln Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Ser Ile Asn Ser Val Glu Thr
 65 70 75 80
 Glu Asp Phe Gly Met Phe Phe Cys Gln Gln Ser Asn Ser Trp Pro Tyr
 85 90 95
 Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
 100 105

<210> 39
 <211> 93
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Human VH Domain
 consensus sequence of Heavy Chain Subgroup III (Humiii)

<400> 39
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Phe Ser Trp Val
 20 25 30
 Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Ala Asp Ser Val
 35 40 45
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Ala Tyr
 50 55 60
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 65 70 75 80

Thr Thr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 85 90

<210> 40
 <211> 81
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Human VL Domain
 consensus sequence of Light Chain K Subgroup I (HumKI)

<400> 40
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Trp Tyr Gln Gln Lys Pro Gly Lys Ala
 20 25 30
 Pro Lys Leu Leu Ile Tyr Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
 35 40 45
 Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
 50 55 60
 Phe Ala Thr Tyr Tyr Cys Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 65 70 75 80
 Arg

<210> 41
 <211> 116
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Murine 1A6 VH Domain
 consensus sequence of Heavy Chain Subgroup III (Humiii)

<400> 41
 Glu Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Val Lys Pro Gly Ala
 1 5 10 15
 Ser Leu Lys Leu Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Thr
 20 25 30
 Tyr Ile His Trp Met Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile
 35 40 45
 Gly Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Asp Pro Lys Val
 50 55 60
 Gln Gly Lys Ala Thr Met Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr
 65 70 75 80

<220>
<223> Description of Artificial Sequence: Murine 1A6 VL Domain
consensus sequence of Light Chain K Subgroup I (HumKI)

```
<210> 43
<211> 116
<212> PRT
<213> Artificial Sequence
```

<220>
<223> Description of Artificial Sequence: Humanized 1A6
(Hum19) VH Domain consensus sequence of Heavy Chain
Subgroup III (Humiii)

<400> 43
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
20 25 30

```

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35              40              45
Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Ala Asp Ser Val
      50              55              60
Lys Gly Arg Phe Thr Ile Ser Ser Asp Asp Ser Lys Asn Thr Ala Tyr
      65              70              75
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
              85              90              95
Thr Ala Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
      100              105              110
Thr Val Ser Ser
      115

```

```

<210> 44
<211> 108
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> Description of Artificial Sequence: Humanized 1A6
      (Hum19) VH Domain consensus sequence of Light Chain K
      Subgroup I (HumKI)

```

```

<400> 44
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
  1              5              10              15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
      20              25              30
Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
      35              40              45
Tyr His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
      50              55              60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
      65              70              75              80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
      85              90              95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
      100              105

```

```

<210> 45
<211> 93
<212> PRT
<213> Artificial Sequence

```

<220>

<223> Description of Artificial Sequence: Human VH Domain
consensus sequence of Heavy Chain Subgroup III (Humiii)

<400> 45

```

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1              5              10              15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Phe Ser Trp Val
              20              25              30

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Ala Asp Ser Val
              35              40              45

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Ala Tyr
 50              55              60

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 65              70              75              80

Thr Arg Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
              85              90

```

<210> 46

<211> 81

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Human VL Domain
consensus sequence of Light Chain K Subgroup I (HumKI)

<400> 46

```

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1              5              10              15

Asp Arg Val Thr Ile Thr Cys Trp Tyr Gln Gln Lys Pro Gly Lys Ala
              20              25              30

Pro Lys Leu Leu Ile Tyr Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
              35              40              45

Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
 50              55              60

Phe Ala Thr Tyr Tyr Cys Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 65              70              75              80

Arg

```

<210> 47

<211> 753

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic nucleotide sequence of Humanized scFv3 (Hum3)

<400> 47

```
cgaaccatgg gcgatatcca gatgacccaa tctccgtcta gcctgagcgc cagtgttggt 60
gatcgagtta ccattacttg ccgcgccagc caatctatca gtaataatct tctactgggtat 120
caacaaaaac cgggtaaagc tccgaaactt cttatcaaac acgcctctca gagcattagc 180
ggcgttccga gccgcttctc tggctctggc tcgggcacgg actttaccct taccatcagc 240
tctcttcagc cggaagactt tgccacctat tattgtcagc agtctaatag ctggcccgat 300
accttcggtc aaggtaccaa ggtcgagatt aagcgcggcg gtggcggttc tggtagcggt 360
ggtagcggtg gcggtggatc cggtagcggt ggcagcgaag ttcaacttgt tgagtctggt 420
ggcgggtctg ttacagccggg tggctctctg cgcctgtctt gcgcagcaag cggtttcaac 480
attaaggaca cctacatcca ttggatgagg caagctccgg gtaagggctc ggagtggtg 540
gcacgtatcg acccgcaaaa cgacaacacc atttacgac cgaagggtgca gggccggttt 600
actatgtctg cggacacctc taagaacacc gcgtaccttc agatgaactc tctgcgtgcc 660
gaggacaccg ccgtctacta ctgcacgacc tctggctact ggtttgcta ctggggccag 720
ggcacgcttg tcaccgtctc ttctgggttaa ccc 753
```

<210> 48

<211> 61

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide AVL-1

<400> 48

```
cgaaccatgg gcgatatcca gatgacccaa tctccgtcta gcctgagcgc cagtgttggt 60
g 61
```

<210> 49

<211> 72

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide AVL-2

<400> 49

```
gtgaagatta ttactgatag attggctggc gcggcaagta atggtaactc gatcaccaac 60
actggcgctc ag 72
```

<210> 50

<211> 71

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide AVL-3

<400> 50
 ctatcagtaa taatcttcac tggatatcaac aaaaaccggg taaagctccg aaacttctta 60
 tctatcacgc c 71

<210> 51
 <211> 68
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic oligonucleotide
 AVL-4

<400> 51
 cccgagccag agccagagaa gcggctcgga acgccgctaa tgctctgaga ggcgtgatag 60
 ataagaag 68

<210> 52
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic oligonucleotide
 AVL-5

<400> 52
 ctctggctct ggctcgggca cggactttac ccttaccatc agctctcttc agccggaaga 60
 ctttgccacc 70

<210> 53
 <211> 66
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic oligonucleotide
 AVL-6

<400> 53
 ccttgaccga aggtatacgg ccagctatta gactgctgac aataataggt ggcaaagtct 60
 tccggc 66

<210> 54
 <211> 71
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic oligonucleotide
 AVL-7

<400> 54
 gtataccttc ggtcaaggta ccaaggtcga gattaagcgc ggcggtggcg gttctggtgg 60

cggtggtagc g

71

<210> 55

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVL-8

<400> 55

cgaaccatgg gcgatatcca gatgacccaa tc

32

<210> 56

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVL-9

<400> 56

cggatccacc gccaccgcta ccaccgccac cag

33

<210> 57

<211> 73

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVH-1

<400> 57

ggtggcggtg gatccggtgg cggtggcagc gaagttcaac ttgttgagtc tggaggcggt 60
ctggttcagc cgg 73

<210> 58

<211> 71

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVH-2

<400> 58

gtccttaatg ttgaaaccgc ttgctgcgca agacaggcgc agagagccac ccggctgaac 60
cagaccgccca c 71

<210> 59
 <211> 67
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
 AVH-3

<400> 59
 ggtttcaaca ttaaggacac ctacatccat tgggtgaggc aagctccggg taagggtctg 60
 gagtggg 67

<210> 60
 <211> 76
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
 AVH-4

<400> 60
 ggcccttcac gctgtcagcg taaatgggtgt tgtcgtttgc cgggtcgata cgtgccaccc 60
 actccagacc cttacc 76

<210> 61
 <211> 81
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
 AVH-5

<400> 61
 cgctgacagc gtgaagggcc gttttactat ttctagcgac gactctaaga acaccgcgta 60
 ccttcagatg aactctctgc g 81

<210> 62
 <211> 67
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
 AVH-6

<400> 62
 ccagtagcca gagtccgtgc agtagtagac ggcgggtgtcc tcggcacgca gagagtcat 60
 ctgaagg 67

<210> 63
 <211> 65

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVH-7

<400> 63

ggactctggc tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttctgg 60
ttaac 65

<210> 64

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVH-8

<400> 64

ggtggcggtg gatccggt 18

<210> 65

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVH-9

<400> 65

gggttaacca gaagagacgg 20

<210> 66

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
BVH-6

<400> 66

ccagtagcca gaggccgtgc agtagtagac ggcggtgtcc tcggcacgca gagagttcat 60
ctgaagg 67

<210> 67

<211> 65

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
BVH-7

<400> 67

ggcctctggc tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttctgg 60
ttaac 65

<210> 68

<211> 81

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
CVH-5

<400> 68

cgctgacagc gtgaagggcc gttttactat ttctggcgac gactctaaga acaccgcgta 60
ccttcagatg aactctctgc g 81

<210> 69

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
CVH-6

<400> 69

ccagtagcca gaggtcgtgc agtagtagac ggcggtgtcc tcggcacgca gagagttcat 60
ctgaagg 67

<210> 70

<211> 65

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
CVH-7

<400> 70

gacctctggc tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttctgg 60
ttaac 65

<210> 71

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
DVH-6

<400> 71

ccagtagcca gaggtcgtgc agtagtagac ggcggtgtcc tcggcacgca gagagttcat 60
ctgaagg 67

<210> 72

<211> 65

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
DVH-7

<400> 72

gacctctggc tactggtttg cctactgggg ccagggcacg cttgtcaccc tctcttctgg 60
ttaac 65

<210> 73

<211> 76

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
EVH-4

<400> 73

ggccctgcac ctteggatcg taaatggtgt tgtcgtttgc cgggtcgata cgtgccaccc 60
actccagacc cttacc 76

<210> 74

<211> 81

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
EVH-5

<400> 74

cgatccgaag gtgcagggcc gttttactat ttctgcggac gactctaaga acaccgcgta 60
ccttcagatg aactctctgc g 81

<210> 75

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
GVL-3

<400> 79

ctatcagtaa taatcttcac tggatatcaac aaaaaccggg taaagctccg aaacttctta 60
tcaaacacgc c 71

<210> 80

<211> 68

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
GVL-4

<400> 80

cccagagccag agccagagaa gcggctcggg acgccgctaa tgctctgaga ggcgtgaaag 60
ataagaag 68

<210> 81

<211> 81

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
GVH-5

<400> 81

cgctgacagc gtgaagggcc gttttactat ttctgcggac gactctaaga acaccgcgta 60
ccttcagatg aactctctgc g 81

<210> 82

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
GVH-6

<400> 82

ccagtagcca gaggtcgtgc agtagtagac ggcggtgtcc tcggcacgca gagagttcat 60
ctgaagg 67

<210> 83

<211> 65

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
GVH-7

<400> 83

gacctctggc tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttctgg 60
ttaac 65

<210> 84

<211> 71

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
HVL-3

<400> 84

ctatcagtaa taatcttcac tggtatcaac aaaaaccggg taaagctccg aaacttctta 60
tcaaacacgc c 71

<210> 85

<211> 68

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
HVL-4

<400> 85

cccgagccag agccagagaa gcggctcgga acgccgctaa tgctctgaga ggcgtgaaag 60
ataagaag 68

<210> 86

<211> 76

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
HVH-4

<400> 86

ggccctgcac cttcggtatcg taaatggtgt tgtcgtttgc cgggtcgata cgtgccaccc 60
actccagacc cttacc 76

<210> 87

<211> 81

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
HVH-5

<400> 87

cgatccgaag gtgcagggcc gttttactat ttctgctggac gactctaaga acaccgcgta 60
ccttcagatg aactctctgc g 81

<210> 88

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
HVH-6

<400> 88

ccagtagcca gaggtcgtgc agtagtagac ggcgggtgtcc tcggcacgca gagagtcat 60
ctgaagg 67

<210> 89

<211> 65

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
HVH-7

<400> 89

gacctctggc tactgggttg cctactgggg ccagggcacg cttgtcaccg tctcttctgg 60
ttaac 65

<210> 90

<211> 71

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
IVL-3

<400> 90

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tcaaacacgc c 71

<210> 91

<211> 68

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
IVL-4

<400> 91

cccagagccag agccagagaa gcggctcgga acgccgctaa tgctctgaga ggcgtgaaag 60
ataagaag 68

<210> 92

<211> 76

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
IVH-4

<400> 92

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actccagacc cttacc 76

<210> 93

<211> 81

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
IVH-5

<400> 93

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<210> 94

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
IVH-6

<400> 94

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<210> 95

<211> 65

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic oligonucleotide
IVH-7

<400> 95

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ttaac 65

<210> 96

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Linker
peptide

<400> 96

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15

Gly Gly Gly Ser
20



Creation date: 10-23-2003
Indexing Officer: SFOLTZ - STEVE FOLTZ
Team: OIPEBackFileIndexing
Dossier: 09910483

Legal Date: 09-25-2001

No.	Doccode	Number of pages
1	A...	2

Total number of pages: 2

Remarks:

Order of re-scan issued on